

SENSOR FOR DETECTING SMALL  
CONCENTRATIONS OF A TARGET MATTER

5     ABSTRACT OF THE DISCLOSURE

10     A sensor for detecting a target matter includes a  
chemical sensitive layer that is operable to react when  
exposed to the target matter and a piezoresistive material  
coupled to the chemical sensitive layer. The chemical  
sensitive layer is configured such that the reaction of the  
target matter with the chemical sensitive layer creates an  
interfacial tension at the interface of the chemical  
sensitive layer and the piezoresistive material that  
changes the electrical resistance of the piezoresistive  
material. However, the chemical sensitive layer is  
configured such that the reaction of the target matter with  
the chemical sensitive layer does not affect the bulk  
properties of the chemical sensitive layer enough to change  
the electrical resistance of the piezoresistive material.

20     The sensor also includes an electrical circuit coupled to  
the piezoresistive material that is operable to detect the  
change in the electrical resistance of the piezoresistive  
material due to the interfacial tension.